CD-ROM DATABASE: INFORMATION STORAGE AND RETRIEVAL MEDIA

A SELECT ANNOTATED BIBLIOGRAPHY

DISSERTATION

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BY

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C O N T E N T S

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Ainul Abedin

ALIGARH

(AINUL ABEDIN)

****
INTRODUCTION TO BIBLIOGRAPHY
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AIM AND SCOPE

The present study displays in the form of annotated bibliography resembles together all the significant literature dealing with 'CD-ROM Databases : Information storage and Retrieval media'. Although the bibliography is selective in nature but exhaustive, and an attempt has been made to cover all emportant aspect of CD-ROM databases.

I am confident that the bibliography will be useful to all those who have some interest in the field of information technology particularly on CD-ROM database.

The bibliography is divided into three parts : The part I, deals with the description of the work.

The part II, which is the main part of the present study consist of an annotated list of 202 articles on the subject these entries are not comprehensive but are fairly representative on the subject.

Part III, however deals with indexes.

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METHODOLOGY
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The primary sources were consulted in the following libraries.

(i) Maulana Azad Library, Aligarh Muslim University, Aligarh.

(ii) Deptt. of computer Science, A.M.U., Aligarh.

(iii) Seminar Library, Deptt of Library & information Science. A.M.U., Aligarh.

(iv) Coaching and guidance centre Library, A.M.U.

(v) Defence and Scientific Documentation centre New Delhi.

The procedure followed in preparing the bibliography was as followed :-

(1) The secondary sources were consulted in Maulana Azad Library. Aligarh to find out the location.

(2) The relevant bibliographical details were noted down on 5" × 7" cards following the ISI standards.

(3) The primary sources were consulted in MAL, Aligarh.

(4) On completion of the abstracts subject headings were assigned, subject headings are completely Co-extensive of the extent possible.

(5) The subject headings were arranged in an alphabetical sequence of various elements.

(6) In the end three separate alphabetical indexes were given: Author index, title index and subject index providing reference to various entries by their respective numbers.

(7) Alphabetical list of peoridicals as well as months are given.

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SUBJECT HEADING
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Attempt has been made to give Co-extensive subject heading as much as possible. It will facilitate the reader to find out desired articles from this bibliography.

An humble effort has been made to follow postualates and principles as suggested by Dr. S.R. Rangnathan in the formation of subject headings ; these are arranged strictly by the principle of alphabetical sequence.

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STANDARD FOLLOWED
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Care has been taken stricty to follow the rules and pfactices of the Indian standard for Bibliographical References (IS : 2381-1963) for each entry of the bibliography. Thus it gives an uniformity for the bibliographical references throughout this select bibliography. This classified catalogue code (CCC) of Dr. S.R. Ranganathan have followed for choice and rendering of authors and headings.

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ARRANGMENT
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The entries in this bibliography are grouped and arranged strictly under subject headings alphabetically letter by letter.

An entry is preceded by subject heading incapitals, The entry begins with Entry Element (i.e. surname) of the author in capitals, followed by secondary element (i.e. forename) within paranthessis and then the title of the article, after this the title of the periodical (in abbreviated form), its volume number, issue number, year, month of publication after which, are given the pages of the articles.

The item of bibliographical reference for each entry contains the following information :-

a. Name(s) of author (s)

b. Full stop (.)

c. Title of contribution including subtitle, if any

d. Full stop (.)

e. Title of the periodical

f. Full stop (.)

g. Volume number

h. Coma (,)

i. Issue number

j. Semi-colon (;)

k. Year of Publication

l.Coma (.)

m. Month

n. Semi-Colon (;)

o. Inclusive pages of article

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SPECIMAN ENTRY
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DODSON (Carolyn). CD-ROMs for the library. Sp lib. 78, 3; 1987; 191-194.

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EXPLANATION
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This article is taken from'Special Libraries' which is titled - "CD-ROMs for the Library", written by carolyn Dodson in the 78th Volume of the issue number 3 of the year 1987 on the pages 191 to 194 against this entry the serial number is given.

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ABSTRACT
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The entries in the bibliography contain abstracts giving the essential information about the articles. Attempts have made to prepare indicative abstract, so that in most of the cases users needs are fulfilled with abstract itself.

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INDEX
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The index part contains list of the subject heading, an author index and title index. The under have been arranged letter-by-letter method. Each entry followed by entry number. It is hoped that it will be found very useful in consultation of the bibliography.

PART ONE
INTRODUCTION

INTRODUCTION

The newest phenomenon in the information world is the CD-ROM which stands for compact Disc-Read Only Memory. Every body is talking about it and everybody's wondering about it. Introduced Commercially as a storage medium in January 1985, this shiny, hand-sized, plastic platter has, since then brought the revolution in the information industry.

CD-ROM is a branch in the optical disc family tree. It is second cousin to the 12-inch Videodisc that was introduced in the 70s, sister to the audio digital disc that has swept the recording industry in more recent years, and parent of such offshoots of the CD-ROM as CD-I (Compact Disc Intractive) and CD-V (Compact Disc Video). Sharing many basic Characteristics with other advanced forms of optical discs (also called laser discs). CD-ROM in its brief existence made a major impact in the information world. So much so, that its arrival has often been referred to a s the most significant breakthrough in information dissemination since Gutenberg's printing press.

A basic knowledge of CD-ROM's technical characteristics provides a framework for understanding its special applications. More important than even the technology itself are the implications of what added benefits this technology brings to information distribution and use.

TECHNOLOGY

Like the other members of the optical disc family, CD-ROM offers the advantages of random access; high density storage ; durability of the medium ; consistent, error-free data retrieval ; Cost-effectiveness per unit of storage ; and archivability - a data life span of more than ten years.

CD-ROM Consists of a polycarbonate (Plastic) substrate On which the data are recorded as a series of 'pits' and 'flats' or'lands' the equivalent of the I's and O's used in magnetic data. CD-ROM uses an ablative recording technique in which the writing laser burns or etches the surface to record the pits. This differs from blistering and refractive techniques that respectively, create bubbles or alter the optical properties of the medium. The microscopic pit measure only 3 microns deep and 1 micron wide (a micron equals a millionth of a meter). The data get stored in a digital pattern of pits and lands squeezed inside a spiralling groove only a micron wide that extends from the inside of the disc of the outside edge. Thus the disc can hold several billions pits.

A thin reflective layer coats the back of disc to reflect the laser beam. This silver coloured layer often consists of Aluminum Or similar material covered

with a Tellurium alloyor silver halide. A protective layer covers the disc's surface.

In the CD-ROM drive, the disc spins above a mechanism called a "detector" which projects the laser beam onto the disc and reads the pattern of light reflected from the pits etched on the surface. The device user precision opties and focusing systems to concentrate a beam of light from low powered laser on the disc surface. Because the polycarbonate is the beam to the detector which contain light sensing diodes that generate a voltage each time the reflected light-changes. (Pits generate a different reflected pattern and corresponding voltage than the lands). There Voltage then get connected to a series of 1's and 0's that the computer can understand.

Prerecorded discs such as the analog optical video disc and the CD-ROM, CD-I (Compact Disc Interactive),DVI (Digital Video Interactive), CD-ROM/XA (CD-ROM extending Architecture) are produced by'etching' a master with a laser. A micro-image disc is made which them serves to produce duplicates in unlimited quantities by stamping.

CD-ROM disc measures only 4.72 inches (120 mm). Floppy disc measure 5.25 inches and data density ranges from 90 KB to 1.2 KB. CD-ROM discs generally contain about 730 megabytes of data with the extra space used mainly for indexing commecting, and updating information.

This is equivalent to data capacity of 500 high density floppy disks. The CD-ROM disc can store 200,000 pages of text or 600,000 MARC records. This is equivalent to 2 million word,text of the 30-volume Britanica encyclopedia-all on one side of a disc. The access speed is the time required to find the track storing the data. The CD-ROM required less than one second for data access. This rate is slower than that of a floppy disk or hard disk; but the databases being accessed are considerably larger than those on magnetic media. However, after locating the track, it can scoop up to one IMB of data while hard disk can retrieve 16 K only. Current CD-ROM drives have faster access time, i.e. 340 milli seconds (ms).

CD-ROM DRIVES

The first generation of CD-ROM drives only had the ability to read digitally recorded data. They were generally full-height, external models that attached to the Computer through a proprietary interface card. Some of them required loading the CD-ROM from the top of the drive. Soon internal models appered and their size decreased to half-height dimensions. SCSI (Small Computer System Interface) Controller cards began to emerge.

Second generation drives included output facks of headpbons or for cables to connect to amplifiers and speakers. By this time, programmers had developed softwere to allow the CD-ROM drive to retrieve and play back sound. Few discs included sound tracks at that time. The software had the effect of making the CD-ROM double as a CD-DA player, controlled by the computer.

Third generation drives offered a solution in the reversal of the direction of the Cooling fan. Instead of drawing Cool air into the drive (along with dust that also passed through the filter), the fans now blew the hot air out of the machine. They also provided an air-tight comportment that sealed off the chasis housing the disc and caddy from the motor and other compartments.

Fourth generation drives appeared on the market in the fourth quarter of 1990. There drives offered more refined safeguarding mechanisms, incorporating features that detect, contaminants on the optical pickup lens and automatically clean it upon disc ejection. They also provide the obility to access more user data-up to 680 megabytes. Additionally, they feature faster access times - 340 milliseconds (ms) - or about four times faster than first- generation drives.

Other important factors involve data layout indexing, and efficiency of the search and retrieval engine. Data that have been Optimized for performance on a CD-ROM will produce results more efficiently. Related data will appear in closer proximity, thereby reducing the number of times the tractor unit will have to move. Also caching software that "reads ahead" while the user manipulates the data also serves to increase performance speeds.

A crucial element in the management of any large quantity of data is its arrangement classification, or indexing. As the search and retrieval process to access this information depends entirely on the indexing, it must be flexible enough to allow different users to retrieve material regardless of their assumptions and terminology.

The quality and throughness of indexing impact the efficiency of data retrieval. The level of error detection and correction reduces the number of retrieval errors. Some search and retrieval programs operate more efficiently than others. This could relate to better suitability to particular indexing schemes or to suitability to particular types of data.

Discs that contain multimedia data (text, audio, grapnics) present special problems. Since CD-ROM is

essentially one long linear medium, it stores data only sequentially (but accesses it randomly), thus presenting a problem in retrieving several types of data simulataneously. A process, called "interleaving", user a checkboard-type technique to gain simultaneous access to such information. One sector stores audio, another, graphics. The third sector stores more audio and the fourth refresher graphics, etc.

ADVANTAGES AND LIMITATIONS

Optical disks have many advantages over magnetic media. Major ones include no wear on the medium and the permanency of the data. Dust and fingerprints which can cause the much dreaded head crashes in computer technology cannot destroy the data on optical disks. The only maintenance manufacturers recommend to care for the discs is to wask the surface with warm water and mild soap and dryit with a link free cloth.

Furthermore, the discs do not wrap as floppies can Etched as a pattern of pits onto the polycarbonate surface, the data are not volatile as are those stored on magnetic disks or tape. So they should be legible as long as a laser beam can be clearly reflected from the surface.

This same characteristic means that climatic conditions do not affect the data, thus allowing use of the discs under circumstances which would preclude the use of magnetic media.

Other important advantages of CD-ROM are its substantial storage capacity with a reasonable response time and its economy with a low cost per bit stored. The only costs incurred cover the hardware and the information purchases or subscriptions. There is no need for backup

hardware or media. As the technology eliminates the need for telecommunication and the related charges, the user can easily browse databases at no additional expense. The ability to mix digital data, still images, motion video, and audio on the same medium with viable cost / benefits will assure its importance to the information and intertainment worlds. It also allows for local control of the system and total privacy to the searcher.

Users must realize that not all information lends itself to distribution on optical disks. CD-ROMs donot provide a particularly good medium for reading material, even though several titles contain full-text literary works. However, it does offer an excellent means for referring to massive, frequently consulted, and relatively stable databases.

The main limitation comes as a corollary to a major strength : the discs cannot be erased. One cannot update and databases without remastering the discs. This makes it a good choice to use in situations which require data permanency and for databases which need little or no updating. This provides an ideal medium for publishers and librarians who deal in information that they do not want altered or multilated. After all, books and journals (in print or microform) are essentially read-only media.

CD-ROM Vs. ONLINE SEARCHING Vs. MICROFORM

Optical media combine the best of the print and online worlds in that they have a fixed cost like print products and powerful such capabilities like online. They also provide quick, random access to a larger quantity of data in ways that microforms cannot users also generally find computer - based products more enjoyable to use than microforms.

Very few CD-ROM products have retrospective coverage that goes as far back as some of the printed materials So, it does not appear likely that optical media will replace print or microform for this reason. Each medium has its own advantages in terms of cost, reliability, speed of access or data capture and long-term storage capabilities. It also does not appear likely that many of these older materials will prove suitable or economically beneficial to reproduce in optical format because of the high costs of conversion and the limited potential use. Nor will optical information systems replace online information because there will always be a need to have current information and access to myriad of databases which get consulted so infrequently as to make their purchase unjustifiable.

Whereas Online costs increase with use, costs of optical products decrease with use. The generally fixed

costs of CD-ROM products make budgeting easier ; but the relatively high cost of many titles puts them out of range for many libraries.

CD-ROM is causing online vendors to rethink some of their pricing policies as heavy usage of some databases shifts to disc, with the online version serving as a backup or source of more current data.

The case of doing research with CD-ROM products has made them very popular with library patrons who may often wait in line to use them or return at a later time if the system happens not to be functioning when they need it. This heavy use has caused sharp increases in supply costs for paper, printer ribbons, and toner or print cartidges.

As CD-ROM penetrates the consumer market, reference librarians may need to consider possibilities, and policies regarding circulating CD-ROM titles. While bibliographic products probably will not circulate, discs that contain collections of works Shakespeare On Disc, Sherlock Holmes On Disc, Or the library of the Future may warrant checking out for patron use. If these products require search and retrieval software that comes on floppy disc rather than on the CD-ROM, this will present some management problems that librarians will have to consider.

APPLICATIONS
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As CD-ROM is a read only medium, it has particular appeal to traditional publishers who produce and distribute multiple copies of information that they want to preserve. It is particularly suited to relatively static, nonvolatile databases principally as a complement to magnetic media.

A. * CATALOGUING *

The Library Corporation first introduced Biblio File to the library world at the American Library Association's Midwinter conference in January 1985, librarians have seen the proliferation of CD-ROM products. The first ones to appear targeted library technical services applications especially cataloguing.

As a large bibliographic database of MARC records already existed in the public domain, taking the Library Corporation's lead, other companies quickly followed suit. General Research Corporation came out with its version of LC MARC records and included about two million records contributed by some of its customers which include public, university, Community College, school, and special libraries.

Bibliofile differs from online Cataloguing system in that there are no telecommunication charges, the system

is available for use 24 hours a day, and the cost is fixed. The two disc of Biblio File are manageable because of queuing feature but using more discs for one database would be slow. Thus, Cataloguing with CDs should be used only by small libraries that can use subsets of LC records.

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B. * PUBLIC ACCESS CATALOGUS *
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It seemed a logical step to go from a database of bibliographic records used for cataloguing purposes to a local database of bibliographic records used as a public access catalogue. Bro Dart produced the first CD-ROM public access catalogue under the name of Le Pac. The Library Corporation was quick to follow and has further refined its Biblio File Intelligent catalogue which incorporates artificial intelligence software. It has also developed it into the only multimedia public access catalogue. The Library Corporation also provides custom - designed enhancements to its Biblio File line which allow a library to maintain an in-house catalogue, establish a multistation local area network, and laser print prestored catalogue cards. It includes special features such as a bar code reader to augment MARC records with circulation information, additional CD-ROM drives, and up to 8 additional workstations.

Because of the static nature of CD-ROM, initial concerns about public access catalogues on disc focused on the currency of data. With no way to update them, they were outdated by the time they came off the production line.

An alternative solution found a way of integrating optical and megnetic disk technology for databases needing periodic updates. This approach stores the main databases on CD-ROM and supplements it will additional records stored on magnetic disck technology or tape until such a time as this data becomes substantial enough to warrant remastering the CD-ROM disc. The research software queries both media simultaneously and displays the results in a manner that is totally transparent to the user. Who remains unaware of where the records reside.

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C.
*** * INTER LIBRARY LOAN *
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As often happens with CD-ROM products, users find applications that the producers never thought of. It did not take long before librarians realized, that by obtaining the CD-ROM catalogue of a major library or a regional library system, they had a tool to identify whether or not a particular library owned a given title upon such verification, they could then place an inter

library loan request more efficiently and economically.

Some state libraries sponsored CD-ROM Catalogues particularly for their interlibrary loan benefits. Some special libraries considered union catalogues of their collections that could serve as subject bibliographics and collection development tools in addition to inter library loan.

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D. * REFERENCE WORKS *
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Grolier became the first publisher to use optical media (both videodisc and CD-ROM) to publish its Electronic Encyclopedia. Many bebliographic databases came into existence to produce indexes and abstrates in print form.

H.W. Wilson planned its WILSONDISC line that grew to include CD-ROM versions of all its products and eventually included products supplied by other publishers, such as MLA International Bibliography and Religion Indexs.

Some vendors have included the company name in the titles, such as Microsoft Bookshelf,,Microsoft Stat Pack, etc. or ERIC On Silver Platter, MEDLINE on Silver Platter, Etc.

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E.
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* BUSINESS *

The business community presented a large and diversified market for optical publishers who had a wide variety of databases in machine- readable format to choose from besides bibliographic ones like ABI / Inform. One of the earliest entransts in this area, Disclosure Information Group, produced a CD-ROM index of its microfiche Collection of financial and corporate under the name compact Disclosure, now renamed Compact/D.

Disclosure has since expanded this title into a family and come out with a product line, the Laser D series, that indicates the full text, and images of those reports an a series of CD-ROMs in bit mapped image format.

Some of these databases targed very specialized business markets, such as Best Databases Services products for the insurance industry or Data Base Products, Inc's FORM 41 - Airline Financial Statistics. The real state market finds CD-ROM particularly appropriate for storing photographs, floor layouts, and descriptive information about available properties.

Other applications focus on census data and demographic information. National Decision System's Laser PC system and Donnelly Marketing Information Service's

Conquest line both deal with demographic data.

A very popular application of CD-ROM technology envolves the mastering of business directories or telephone directories. Many of there products focus on the yellow pages while others focus on white pages.

For those needing address information, several versions of the 47 volume National Postal Service Directory exist in CD-ROM format. Besides saving large expenses for paper and shipping and handling, these directories allow users to retrieve or verify address data in seconds, thereby saving personnel costs that normally would require checking multiple volumes manually.

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F. * MEDICINE *
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The medical profession is another market that needs quick access to large quantities of information either Online or in optical format. The first applications involved versions of the MEDLINE database. When the National Library of Medicine first began licensing its databases for use on CD-ROM, some 15 companies had signed agreements. It remains the database with the most available versions. Silver Platter Information, Inc. produces several subsets of the Excerpta Medica database for specific medical subspecialities.

Other popular medical databases cover the areas of toxicology. Oncology, AIDS information, occupational safety and health, pharmaceuticals.

Physicians also have the benefit of full-text reference books like the physician's Desk Reference, the Oxfort Textbook of Medicine, and the Electronic Library of Medicine some products combine several sources ortextbooks for case of use such as MAXX - Maximum Access to Diagnosis and Therapy.

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G. * EDUCATION / RESEARCH *
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Like MEDLINE, the ERIC database has several versions. In addition to this resource, several academic centres have optical projects for use in education CD-ROMs ability to store data in a variety of media offers particularly attractive opportunities for education. Multilingul dictionaries can provide correct pronunciation and intonation for the learning of foreign languages or for the proper use of new vocabulary words. Related products like Learn to Speak French or Learning Japanese can make language acquisition come alive.

Researchers have databases of theses, specialized encyelopedias (e.g. Health Encyclopedia, International Encyclopedia of Education, the Multilingual Technical

Dictionary, and the State Education Encyclopedia), and full-text resources available.

As CD-ROM decreases in price and gets wider acceptance, we see the development of several applications aimed at the classroom to assist teachers. Products like the Advanced Maths Workshop, Apple Science CD, Educational Testing Database and U.S. History provide excellent resources.

Jostens Learning Corporation is developing a computerized K-12 curriculum on CD-ROM that includes programs for basic learning, adult / at-risk learning discovery learning, and take home learning. It incorporates multimedia software to motivate students to learn and a management system that tracks student progress.

The use of multimedia can bring a new fun dimension to learning. One product in this genre targets fourth-to twelfth-grade students. Mammals, a multimedia Encyclopedia, incorporates sound (instructions, pronunciations and animal vocalizations), text (with hypertext links to other parts of the disc), charts and maps, and graphics. This product's unique feature is that it is the first one to use full motion video on a CD-ROM. Clicking on the film icon puts a movie screen in the centre of the monitor and displays a clip from the

National Geographic Society's vediotape series. These clips range in duration from slightly more than half a minute to over a minute and display in MCGA format at the rate of 15 frames per second at about 75% of their uncompressed size. These clips often show fascinatiny sequences that even visitors to the best zoos would not likely see.

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H.
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* SCIENCE *

In addition to bibliographic tools, the scientific Community has a large number of titles to choose from. They includeproducts like the Institute for Scientific Information, (ISI) Science Citation Index (SCI), the World's largest interdisciplinary science index and a variety of dictionaries and encyclopedias, such as DIALOG On Disc, the MC Graw Hill CD-ROM Science and Technical Reference Set which Combines the MC Graw Hill Concise Encyclopedia of Science and Technology (7, 300 articles) with the MC Graw Hill Dictionary of Scientific and Technical Terms, 3rd edition (98, 000 terms and 115, 500 definitions). Probably the largest concentration of databases cover the area of computer science with database like the computer library, the computer Database, computer spees CD-ROM etc.

Patent databases have seen a remarkeble surge in the past year. Several database producers produced CD-ROM versions with digitized images. Products include Automated Patent Searching on CD-ROM, CASSIS / BIB, CASSIS /CD-ROM, PATENT Database, Patent History etc.

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I.
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* GOVERNMENT *

The U.S. government through its various agencies, constitute the country's largest single producer of information. To keep them drowing in the flood of paper they produce and handle, some departments have actively engaged in researching cost-effective methods of mass storage of text anddata. Many of them have adopted CD-ROM as a publication medium.

The Government Printing office (GPO) accepted CD-ROM as a Cost-effective means of distributing large quantities of information that often spanned several printed volumes or many microfiche.

The Government databases cover virtually every subject : agriculture, biology and the like sciences, census data, climate and weather data, Communications, earth sciences, economic data, education, energy, the environment, geography, labour statistics, legal codes and regulations, marine science, medicine, mulitany and

novel data and standards, patents, politics, and space data and standards, patents, polities, and space science.

To consider one example, NASA's Jet Propulsion Laboratory (JPL) selected CD-ROM forstoring space images on earth. Thedata from the space exploration missions, such as voyager's fly-by of the moons of Jupiter and Uranus are transmitted to NASA from satistic and stored stored on megnetic tape.

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J.
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* SOFTWARE DISTRIBUTION *

Several companies have adopted CD-ROM as an alternative to distributing software on magnetic tapes or floppy disks. CD-ROM offers the advantages of high Capacity, faster production time potentially lower production costs, and much lower shipping costs.

Some companies, like Hewlett-packard. Digital Equipment Corporation and Lotus Development Corp, also distribute technical documentation and manuals on disc along with software and device drivers.

Microsoft Corp's Programmer's Library gives programmers immediate access to a comprehensive databases of books, technical manuals (over 20,000 pages), and 1, 200 sample programs on a CD-ROM. The 48 books and

manuals in the library provide a wealth of information on Microsoft operating systems and languages, ranging from quick-reference help to detailed discussions. They Cover Microsoft C Compiler, Proficient C, Windows, Programming windows, MS-DOS Eneyclopedia, BASIC, FORTRAN, and Microsoft Systems Journal. The disc also includes references for hardware devices, CD-ROM drives, and video cards.

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K. * MULTIMEDIA *
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First generation CD-ROM discs contained single databases from a single source. Second generation discs combined multiple databases from one or more sources such as census data and state maps. Both first and second generation products relied on machine-readable data. Third generation discs incorporated material in traditional formats converted to digital form by means of optical scanning. Some of these included multiple media, such as text and graphics or text and audio, as discrete elements or as complements to each other in the same manner as magnetic disks do.

Fourth generation products contain "multimedia" in what Philips, Microsoft, and Sony refer to as "Com pound mode", i.e. the integration of several media within the same application. Fifth generation discs will probably

include interleaving capabilities that will accommodate simultameous retrieval of different ypes of information that require different display rates.

Multimedia data have a more complex structure than text, record and still image data (i.e. any data which does not have to be interleaved for presentation in real time). No Common format exists for submitting this data for mastering. As a result, the current process is different and error-prone, with each mastering house having its own rules for the way in which the data should be submitted.

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L.
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* ARCHIVING *

An important development in the use of CD-ROM involves replacing microfilm with CD-ROMs. Reader printers are very expensive to purchase and more expensive than photocopiers to operate, only to provide inferior reproductions.

Patrons have not liked microforms because of the difficulties of locating them and then because of the time required to locate the desired information and the difficulties of browsing.CD-ROM provides quicker access to larger quantities of information and can allow for copying in a variety of formats users can retrieve the

information with a computer and copy it on a floppy or harddisk or channel it to a printer.

With a CD-ROM index, users can quickly locate references to the documents they need, insert the appropriate disc, and retrieve the image for display. They can also enlarge it or shrink it to predetermined size. However, these documents require a large amount of s torage space. UMI has developed several products along this line: General Periodicals Ondisc, Business Periodicals Ondisc, Disclosure's Laser / D series provides the full text and images of Corporate annual reports indexed by the compact / D series.

The National Archives and Records Administration wrestled with the issue of archivability among others, including the problems with paper storage and the associated filing and maintenance problems, the need for quick record retrieval for the public, the devise to transport images rapidly with no determination in quality, and the need to preserve the many original records now in damaged and poor condition.

Dispite the National Academiy of Sciences report, the National Archives user CD-ROM for some of its records, Researchers have such a high demand for some documents that an optical storage and retrieval system looks very favourable for these items. This could involve a million

documents a very small percentage of the documents stored. The Government Printing Office has also adopted CD-ROM as a distribution for its large quantities of data.

**** M. ****

* IN-HOUSE PUBLISHING *

CD-ROM has shown that any person with a database can become an optical publisher. Librarians and companies can develop software in house to customize it to their own specifications. They can purchase or license one of the many Commercial retrieval packages such as knowledge Access International's KA ware Disk Publisher or Data-ware Technologies, Inc's CD Author. Or they can go to a service bureau to have the job done for them.

*** N. ***

* NETWORKING *

One of the most frequent complaints about CD-ROM before 1988 focused on its limitations as a single-user system. In other wards, only one use could access a title at any given time.

Daisy-chaning, Cabling several drives together, provided a solution to accessing large, multidisc databases. While this solution eleminated the need to change discs frequently, it did not eliminate the problem

of a single user per title. Librarians, looked forward to the day when they could network their hardware and databases.

Network administrations face a whole new set of challenges and problems that they do not have in a single user environment. Infact, many of the problems that occur in a CD-ROM local area network often have nothing to do with the CD-ROM local area network often have nothing to do with the CD-ROM Component of the network.

Apart from the numerous Vendors who manufacture single CD-ROM players, at least five companies market multidrive units : CD-Plus ; CD-ROM, Inc, OCLC; Online Computer products, Inc ; and Todd Enter prises. Daisy chaining individuals CD-ROMs requires an outlet for each drive.

FUTURE

1. SMALL DISCS

Many CD-ROM databases occupy very little disc space. Even Grolier's New Electronic Encyclopedia uses only 20% of the available capacity. We can expect to see soon the introduction of 3.5 inch CD-ROM discs which have proven popular in Japan with Sany's Data Disc Man. With a capacity of about 200 MB, each disc could store the equivalent of a medium-sized encyclopedia. Portable CD-ROM systems will benefits in particular

2. DATA COMPRESSION

As disc sizes decreases improved data compression techniques will permit storing information in less space. Large databases will require few discs, and moderately sized ones can use smaller discs C-Cube Microsystems, Inc has developed a compression chip that uses a compression algorithm known as discrete cosine transform which will address high-resolution, real-time video, still image compression videomail, and conferencing.

We can expert to see improvements in error detection and correction techniques which will also permit greater data compression.

The use of both sides of a disc for recording data would double its capacity. However, it would leave little or no room for printing titles, logos, contents and other information on the disc.

Improvement in head design that use light weight materials or low-mass holographic heads will result in less inertia exerted by the optical pickup unit. This will translate into faster access time.

3. * PORTABLE SYSTEMS *

Portable CD-ROM systems should have appeared on the market. Sony introduced the Data Disc Man to its Japanese customers in the summer of 1990. This unit consists of a hand held CD-ROM drive with a built-in microprocessor, a flip-top sereen and drives that allow the screen to display either data or a keyboard.

Future drives may incorporate mechanisms to support a variety of optical media such as DVI, Video-disc, WORM, etc. Some drives "Combi" already exist that incorporate two or more types of drives (e.g. videodisc and CD-ROM in the s ame case. Eventually, we may see a single drive "Omni" that will have the capacity ot detect the size of the disk and its format (videodisc, WORM, CD-ROM, CD-I, Or erasable) or allow the user to select it by fipping a switch.

Such systems will also require integrated workstations (otherwise known as "scholarly Workstations" to access information regardless of the medium : Online magnetic disk, vediodisk, CD-ROM, WORK, or CD-I and regardness of the format.

4. * WRITABLE CD-ROM *

Writable CD-ROM systems will allow users to create actual CD-ROMs that any computer on the market which supports the ISO 9660 format can read. This will satisfy those with low-volume software production and in-house data distribution needs. It could also serve for cutting and evaluating a test disc, thereby saving time and many.

5. * VIRTUAL REALITY *

It is also known as"artificial reality"or"cyber space"that takes our lives into the technology. It suggests that life, like film, video, and compyter data can be edited, reprogrammed through artificial evolution, or redesigned by technology.

One enters this artificial world by putting on special clothing wired to a computer. Gloves and suit with sensors and transmitters send and receive data.

Headsets provide three dimensional stereo sound. Helmets include both audio and video output. The computer generates sounds and emages either of the real world or of an imaginary one that appear to the viewer in three dimensions.

CD-ROM discs could supply the data modules used in these systems. Software programs allow people to seethe world from many vantage points, including real scenes and situations or imaginary ones. One can also interact with real people connected to the same virtual world virtual reality many seem just fun and games right now ; but of will of gain popularity when it appears in the video arcades. However, the concept has a serious purpose. It will let people transcend their indentities and experience things from different viewpoints without much effort and not much time. Simulated experiences offer opportunities for safe activity in a risky world.

The technology permits mixing real life with animation or computer generated graphics. The computer could take photos or full motion video sequences and modify them to create a variety of special effects such as we see in television shows and movies. Video effects such as super-imposition and mattering can now come down to the user level.

CONCLUSION

CD-ROM has played a significant role in raising the profile of libraries and can play a crucial role in lifting the status of library as a modern information provider. While researching the topic it became apparent that there was a lack of current up-to-data information on CD-ROMs. This reflects the general lack of research in public libraries. There is both the need to improve library statistics and to look much more closely at what goes on in the public library.

Much has been said about CD-ROM's future but CD-ROM will be around for a long while yet. CD-ROMs are an ideal product for public libraries, as costs can be controlled and supervision requirements are low. Furthermore, as more and more of the public become information trained, at school or at college, more will expect to find CD-ROMs in their local libraries. The online revolution has largely passed public libraries by (though they may get another opportunity to get aboard with the Internet). Let us hope that they do not miss out on CD-ROM too-and this is a technology far more up their street.

Although CD-ROM is not the answer to all information distribution questions, it has found its place in today's information world. Understanding this technology

leads to greater comprehension of the benefits it can provide in information delivery.

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PART TWO
ANNOTATED BIBLIOGRAPHY

CD-ROM

1. CINNAMON (B). What is CD-ROM? Microg Opt Tech. 8, 2; 1992; 81-84.

Provides an Overview of the CD-ROM technology for the benefit of those who are unfamiliar with this new information technology. Describes the advantages of this information technology and lists out the whole range of terms and issues that relate to the CD-ROM industry and associated technologies.

2. HELGERSON (Linda W). CD-ROM: A revolution in the making Lib Hi Tech. 4, 1; 1986, Spr ; 23-27.

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_____, DATABASES

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Examined the appropriateness (as determined by three independent judges) of database selection by pattons, when a choice of databases was provided.

_____, DATABASES

5. ARUNDALE (Justin). Putting the independent on CD-ROM. LA Rec. 93, 1-2; 1991, Jan/Feb; 51-52,

Gives the advantages of using CD-ROM technology for newspaper text archives and describe the operation. The problem was to pur together a production team that would have the necessary skills to mange such an ambitious project. It was clear that we would have to find a publishing partner.

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Presents the converging technologies which have led to the micro-computer information work station operating with retrieval software and on line databases stored on optical dises (knowa as compact discs Or CD-ROMs). Emphasis is placed on the products developed by international Thomson Information.

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——' ——' CONFERENCE, INTERNATIONAL, MICROSOFT

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Observes declining drive prices mean, we can convert large, expensive low-volume published documents to CD-ROM in house for well under $ 100 a disc. Alternatively, we can use CD-R as a prototype for commercial mastering.

50. LANGLOIS (J). CD-ROMs : Considerations before purchasing. CD-ROM Libr. 5, 11; 1990, Dec ; 17-19.

Discusses the advantages and cost benefits of CD-ROMs. Also describes the cost effective means of publishing and distributing large quantities of information through CD-ROM.

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Describes the availability of databases an CD-ROM will have little impact an On-line revenues. From a detailed reasoning of costs, income and pricing, concludes that Until CD-ROMs are really well established take up is unlikely to be sufficient to attract medium sized database producers. Larger database producers may find enough subscribers to make CD-ROM economically attractive, but may feel it more important to expand markets elsewhere rather than experiment with new technology.

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_____, _____, ELECTRONIC PUBLICATION

58. ARNOLD (Kenneth). Virtual transformations : The evolution of publication media J Libr. 43, 4; 1995, Spr; 609-625.

Discusses the developing publication forms in the electronic environment in the light of recent critical perspectives on textuality, historical dimensions of technological change, and practical consideration of economic and political culture. Suggests that the book will be significantly altered in the networked future-transformed into something new-but concludes that impediments to change are cultural not economic or technological.

59. BEDI (D S) and VATS (Geeta). Electronic publishing : Emerging trends. Desidoc Bull. 9, 5; 1989, Sep ; 1-6

Describes the electronic publishing concepts and their implications in scientific publishing consolidates the trends emerging in the field of electronic publishing in the background of factors affecting both its promotion and inhibition.

60. DICKINSON(G) Choosing a CD-ROM encyclopedia : How to critically evaluate the product. Lib Soft Rev. 9, 5; 1990; 277-82.

Gives a CD encyclopedia has become an expanded reference tool. With the production of the first electtonic encyclopedia, Grolier educational Corporation become the first entrant in the market. The new products have

different features and prices, with competition comes more choices for the prospective buyer.

61. GERACI (Diane) and LANGSCHIED (Linda). Mainstreaming data : Challenges to libraries Inf Tech Lib. 11, 1; 1992, Mar ; 10-17.

Suggests that libraries are increasingly aware that their role includes providing access to data in electronic form. Determining the level of service and acquiring the skills needed to provide effective access are key to integrating data services with success in any organization, as is having the administrative support to do so. The proliferation of electronic media, formats, hardware, and software requires new knowledge bases.

62. GIMSON (Roger). Electronic paper - can it be real ? Aslib Proc. 47, 6; 1995, Jun ; 139-143.

Discusses the used of the phrase "electronic paper" to suggest that electronic information displays may replace the printed page. Progress towards the ideal of electronic paper is reviewed along several dimensions : the technologies, such as the display surface, the appearance, such as the page layout, and the function, such as the styles of interaction, that are currently available and may become possible in the future.

63. HICKEY (Thomas B). Present and future capabilities of the online journal. Lib Tr. 43, 2; 1995, Spr ; 528-543.

Describes electronic journals are currently being developed in three main formats : simple text, page image and structured text. Each of these formats has its own strength sand weaknesses, and there are some combinatons of the three that offer interesting capabilities. The role traditional journals play is changing as it becomes much easier for individuals to publish articles directly.

64. HOCKEY (Susan). Evaluating electronic texts in the humanities. Lib Tr. 42, 4; 1994, Spr ; 676-693,

Shows the number of electronic texts in the humanities is growing fast and many libraries are seeking to acquire them from various sources or to provide access to them. The text Encoding initiatives proposal for documenting electronic texts are surveyed, and the article concludes with a discussion of software and access tools.

65. JACOBS (I). CD-ROM publishing : A publisher's perspective. Comp Hist Art. 3, 2; 1993 ; 39-58.

Provides that paper delivered at the December 1991 CH Art Conference, Otthough it has been updated in the light of developments since then. An analysis and evaluation is made of the CD-ROM market in publishing with particular focus on large works of reference.

67. KABEL (M). Electronic publishing and research in art history. Comp Hist Art. 4, 1; 1993, 55-63.

Discusses the recent advances in computer technology have the potential to greatly facilitate the study of the arts and humanities. The most popular medium used to distribute these electronic publications is the CD-ROM. Describes how CD-ROM publications are different from both printed publications and traditional automated databases.

68. LANCASTER (F W). Evolution of electronic publishing Lib Tr. 43, 4; 1995, Spr ; 518-527.

Mentions the development of electronic publishing since the early 1960s- when computers were used merely to produce conventional printed products to the present move toward networked scholarly publishing. Major projects of this kind (in which the electronic version is accessible online, as CD-ROM.

69. NADIA (Catenazze) and LORENZO (Sommaruga). Hyper-book : A formal model for electronic books. J Doc. 50, 4; 1994, Sep; 316-323.

Introduces the use of the hyper-book model for organising and presenting electronic documents could have a considerable impact in the context of electronic

publishing. A system based on this model, could have a large applicability and use in several fields such as electronic libraries, thanks to its user-friendly interface.

70. ORDEN (R Van). Content-enriched access to electronic information : Summaries of selected search. Lib Hi Tech. 8, 3; 1990, 27-32.

Addresses the value of content-enriched access, are important to continued progress in information retrieval. Well-selected content components and full text materials in electronic systems must be linked with inpraved search methodologies, better computer interfaces, and greater understanding of the structure and use of knowledge.

71. ROSENZWEIG (R). Digitizeng the past : A history book on CD-ROM. Inf Ser Use. 13, 1; 1993; 35-40.

Describes a pioneering effort to create on electronic history book. From the centennial elebration of 1876 to the Great war of 1914. Unlike a comentional print book, this electronic book includes audio and film clips along 5,000 bages of text documents, more than 700 pictures, and extensive, computer-based search features.

72. SCHEID (Barbara L). Electronic libraries : The pros and cons of multimedia access. Inf Tech Lib. 11, 1; 1992, Mar ; 59-61.

Discusses the administration of Copyright for electronic information is a major concern. National and global networks make this type of information available to higher education institutions, libraries and business around the world. Until eighty percent of the user base has electronic access to the information, the user library will have to continue to keep a hard copy of information.

73. SPRING (MB). Origin and use of copymarks in electronic publishing. J Doc. 45, 2; 1989, Jun ; 110-23.

Gives an historical review of copymarking and a conceptual description of various types of copymarks. The basic categories of copymarks are described and related to the functions of composition systems. Implications for future research on documents and document processing are described and issues is the development of interchange standards and conversion are reviewed.

74. STURGES (Paul). Policies and criteria for the archiving of electronic publishing J Libr. 19, 3; 1987, Jul; 152-172.

Shows the impermanence of magnetic media has led to a concern in the library and information community with the fate of the fast increasing amount of information

which is electronically published. Different approaches from libraries, digital mapping, video archiving, archives and data archives, office management, and the world of commercial publishing offer insights into the kinds of policy which might be adopted to deal with this problem.

75. WIEDERHOLD (Gio). Digital libraries : Value and productivity. Comm ACM. 38, 4; 1995. Apr : 85-95.

Discusses a digital library is popularly viewed as an electronic version of a public library. But replacing paper by electronic stronic storage leads to three major differences : storage in digital from, direct communication to obtain material, and copying from a master version.

_____, _____, _____, LIBRARY SCIENCE

76. LEE (Joel M). Electronic publishing in library and information science Lib Tre. 36, 4; 1988, Spr; 673-693.

Analyzes the importance of electronic publishing its advantages and disadvantages particularly is library and information science. Electronic publishing gives the concept of paperless society. It presents, history, types of electronic products and also discursed about trends, change and projection.

_____, _____, _____, LIBRARY, UNIVERSITY, CALIFORNIA

77. MERILL (Deane), PARKER (Nathan) and GEY (Fredric). University of California CD-ROM information system. Comm ACM. 38, 4; 1995, Apr; 51-52.

Describes that University of california CD-ROM information system replaces the equivalent of 260,000 books of published federal statistics with a CD-ROM based online information system. The size of this database is currently 270 CD-ROMs (135 GB).

_____, _____, ENCYCLOPEDIAS, LIBRARY RESOURCE CENTRES

78. BARLOW (Diane) and KARNES (Brenda). CD-ROM in a high school library media centre : A research project. Sch Lib J. 12, 2; 1987, Nov ; 66-72.

Examines a cooperative research project between faculty at the University of Maryland's college of library information services and the faculty of Swattsville high school. Maryland, to study the use of CD-ROM in the schools library media centre. The study used Grodier's Academic American Encyclopedia on CD-ROM using the knowledge retrieval system software. Discusses system requirements, observations of student usage, information seeking strategies and operation problems.

_____, _____, FINANCE

79. CONIBEAR (Martin). CD-ROM for the financial analyst. Online Inf, 8, 2; 1987, Dec; 19-24.

Narrates the worlds financial markets are changing very rapidly and if CD-ROM is to service this market, data must be provided in a timely fashion, possibly in conjuction with online services. Software must be easy to use and the data bases familiar to users. Text retrieval techniques will be allow the development of a completely integrated information work stations.

_____, _____, FUTURE

80. COX (John) and HANSON (Terry). CD-ROM : Still transient after all these years? LA Rec. 96, 4; 1994, Apr; 210-211.

Suggests that CD-ROM could be indanger of being overtaken by the inherent superiority of other databases distribution media. It examines the evidence of adoptability and improvement which will help CD-ROM networking to hold its own for some time yet. Thus the magnetic disc magnetic tape and floppy options are like CD-ROM, in the physical distribution camp while access via wide-area networks, whether commercial or academic, is in the on line camp.

81. HERTHER (Nancy K). CD-ROM, information and the future : An interview with Microsoft's Bill Gates. LD Prof. 1, 1; 1988, May ; 36-43.

Observes in 1987, California state university at Long Beach library developed a three phase evaluation programme aimed at developing a CD-ROM database facility within the library. In Nov, 87 the library introduced 6 CD-ROM products : Datext's CD/ Corporate ; DIALOG on Disc's ERIC ; Newsbank Electonic Index, Wiley's Kirk-othmer Encyclopedia of chemical technology : Ulrich's plus; and Books in print plus with Book Reviews. The CD-ROM checklist developed for the evaluation in appended.

82. REID (H T). Continued power with fulltext CD-ROM. Elect Lib. 12, 5; 1994, Oct ; 308-311.

Describes full-text CD-ROM is a powerful tool and publishers are finding ways to build more into their product. World library has upgraded library of the future with a third edition (World library Inc, 1991-1994) Library of the future is a CD-ROM tool to access classic literature, some religions works and some important documents in full text. World library has added windows operation and new graphic effects to the product.

83. ZINK (S D). Planning for the perils of CD-ROM Lib J. 115, 2; 1990, Feb; 51-55.

Discusses about the new information technology, particularly CD-ROM, its huge storage capacity. Also describes the advantages and disadvantages of CD-ROM and future prospect.

_____, _____, HEALTH AND SAFETY INFORMATION

84. DAVIS (J C). Delivering health and safety training on interactive CD-ROM : A case study.Interactive Multimedia. 2, 2; 1991, Feb ; 17-22.

Traces the development of the Hazard Awarness Health and safety library marks the first time a multimedia CD-ROM based product has been offered as an off-the-shelf solution to providing mandated health and safety information to employees. Describes the process of developing this product, the lessons learned, and implications for future development.

_____, _____, HOUSE KEEPING OPERATIONS

85. IYENGAR (T K S). Application of computer to house keeping operations in libraries. Lib Sc Slant Doc. 23, 2; 1986, Jun ; 103-125.

Examines the preliminary steps to be taken and the mechanics involved at different stages in initiating software, Database, data dictionary and preparing data-

transmitted sheet for the purpose of developing program, language and programming for any one of the house keeping operations.

_____, _____, INFORMATION,BUSINESS, DATEXT

86. OJALA (Marydee). Should you disk-connect ? Datext in the business library. L Dis Prof. 1, 1; 1988, May; 72-75.

Reviews the range of business data bases produced by Datext. Datext sells 8 products on 11 CD-ROMs and these include : CD/ Corporate ; CD/ Corptech; CD/ international CD/ Banking and CD/ Savings & loans, CD/ Corporate contains information from 6 databases (ABI / INFORM, PROMT, DISCLOSURE, Investment, Media General and Who's who in Finance and Industry) Combined on 4 CD-ROMs.

_____, _____, INFORMATION RETRIEVAL

87. CICHOCKI (Edward M) and ZIEMER (Susan M). Design Considerations for CD-ROM retrieval software. J Amer So Inf Sc. 39, 1; 1988, Jan, 43-46.

Describes the CD-ROM requires a different kind of retrieval system design from systems on magenetic media because the disc's physical characteristics and drive differ from those of magnetic media. Retrieval system designers must be concerned with the ways to minimize seeks (Access time), transfer large amount of data following

each seek, store data proximally, and maximize CD-ROM performance.

88. EKENGREN (Bo). Information retrieval : Databases On line or on CD-ROM: A question of today and tomorrow. Online Inf. 4, 2; 1987, Dec ; 313-317.

Deals with information retrieval of databases on-line or on optical media and the role of the librarian. During the last years many databases have appeared on optical media, partly because of the high Communication costs in searching data-bases Online. Discusses the impact of this rapidly changed world of media and information on libraries.

89. ANSOR (P). Keyword / Boolean searching on an Online public access catalogue : CD-ROM searching and its effect. CD-ROM Libr. 7, 11, 1992; 18-23.

Focusses on the part of the study dealing with the relationship between keyword / Boolean searching on an OPAC and previous experience with CD-ROM database.

90. FRIERSON (Eleanor) and LINDSEY (Georg). Computers and communication : Technologies for the Management of international agricultural information. Lib Tr. 38, 3; 1990 Win ; 474-497.

Examines the changing paradigm of information retrieval. The shift from the point of view of the codifirs of information examined : telecommunication, optical media,

data conversion technologies, and expert systems. Each is described technically and evaluated for its comportance and potential applications optical storage media like CD-ROM will allow even the smallest information centre to offer significant holdings.

91. GILCHRIST (Alan). Information technology and information work Aslib Proc. 39, 10; 1987-326.

Discusses only in the last full decade have we see the widespread use of the word processor (and, incidently, text retrieval software) and now, in the late 1980. We are grappling with the micro computer revolution, management workstations, CD-ROM and expert systems. For the future we are promised more and better of everything.

92. GOPINATH (M A). Design of concept codes in information retrieval : An analysis of trends Lib Sc Slant Doc. 24, 4; 1987. Dec; 226-234.

Presents a set of criteria involved in the design and development of information retrieval system. Analyses the value of facet analysis technique in the knowledge representation process.

93. HAWKINS (D T). Breaking the keyboard barrier : Voice input to information retrieval systems. Online. 18. 6; 1994, 66-71.

Gives technological trends in this area, giving the drawbacks of keyboards and also hurdles in development of Voice technology. Research has been exploratory and theoretical, but recently voice technology has began to emerge from the laboratory environment and has been applied to practical applications such as information retrieval.

94. ROWLEY (J E). Overview of microcomputer text retrieval packages. Aslib Proc. 40, 11/12 ; 1988, Nov/Dec ; 311-319.

Describes the text retrieval software packages are designed to support the creation of textual rather than numerical, tobular or graphical databases. General trends concerning the nature of text retrieval software packages that run on microcomputers are analysed.

95. SICHEL (Beatrice). Training endusers on Math Sci disc. Sp Lib. 82, 4; 1991, Win ; 282-287.

Discusses how a specific library successfully installed a CD-ROM database for providing access to mathematics literature. The librarian presents ways of providing three levels of traning so as to ensure that all user groups received end-user instruction. The three modes include : information demonstrations, self instructional guides, and formal class presentations.

96. Williams (Martha E). Transparent information systems through gateways, front ends, intermediaries, and interfaces. J Amer So Inf Sc. 37, 4; 1986, Jul ; 204-206

Provides an overview of the design requirements for transparent information retrieval. The term "transparent information retrieval" implies that the user sees through the complexity of the sequence of retrieval activities. The final section treats new technologies, such as CD-ROM, and the possible effect they may have on transparency aids such as gateways.

_____, _____, _____, FUTURE

97. COX (John) and HANSON (Terry), CD-ROM : Still transient after all these years ? LA Rec. 96, 5; 1994, May; 271-273.

Discusses why CD-ROM became so popular is that it offered an escape from the oppressive tecking clock that had always accompanied the traditional Online search. CD-ROM was available on a subscription basis and liberaries were able for the first time, to offer powerful information retrieval tools to all their users without restriction. The most important market for CD-ROM now and for the future is as a delivery mechanism for multimedia consumer products.

_____, _____, INFORMATION RETRIEVAL SOFTWARE

98. HERTHER (Nancy). Silver disk : Access software for optical/ laser information packages. Database. 9, 4; 1986, Aug; 93-97.

Examines the hardware standards for CD-ROM basically established, it is now up to software developers to provide efficient indexing and retrieval software. Lists areas of user expectations in access software for CD-ROM and other optical products. Looks at CD-ROM access software. Provides unformation producers comments on access software. Lists access software packages for CD-ROM application.

_____, _____, INFORMATION SERVICE

99. ABRAHAM (Deboard V H). Maximizing computer power for public libraries. Iaslic Bull. 38, 4; 1993, Dec ; 147-153.

Discusses that computers have made possible substantial gains for libraries in three areas : improved delivery of routine services, reference work and resource sharing. Surveys the experiences of US libraries with implications for Indian libraries. In libraries, throughout the world, computers are most importantly used to improve service to the user.

100. BURTON (Hilary D). Technology to provide excellence in information services, Sp Lib. 78, 1; 1987, Win : 1-5.

Reviews the progress, to date, intechnology to create and support an environment, and describes an optimized system of information services.

101. FRIES (James) and Brown (Jonathan). Business information on CD-ROM : The datext service at Dartmouth College. Program .21, 1; 1987, Jan; 1-12.

Describes CD-ROM is not just a simple replacement for online services. It is concluded that while straight forward repackaging onto CD-ROM of single online databases may not be attractive, value added products such as Datext, which collect information from several sources and provide facilities for manipulation of the retrieval data.

102. MILLER (Todd). Software for library applications : The information access approach. Lib Soft Rev. 6,6 ; 1987, Nov / Dec; 388-390.

Traces the desion of search software for the Info Trac CD-ROM database by the information access company bearing in mind the needs of librarian and library patrons.

103. PETERS (Charles). Databases on CD-ROM : Comparative factors for purchase. Elect Lib. 5, 3; 1987, Jun; 154-160.

Gives some of the many databases now available on CD-ROM, which often have enhancements over print and on line versions. Discusses, the advantages of CD-ROM and different searching metnods, with and without a mediator. Examines particular products drawing attention to special features such as these which aid end-user searching. Product Covered include : database published by silver platter; Newsbank; dissertation abstracts.

104. RAMAIAH (C K). Adoption of CD-ROM in libraries Desidoc Bull. 9, 4; 1989, Jul ; 3-11.

Describes briefly CD-ROM- its characteristics, advantages,limitations and mechanisms for recording and reading information. The basic configuration of a CD-ROM system and some guidelines for its installation are given. Application of CD-ROM in libraries and information services in compact disc format are enumerated.

105. SCHAEFER (Mary Tonne). CD-ROM update : Developments impact on information community. Inf Ret Lib Auto. 22, 6; 1986, Nov ; 1-4.

Focusses on new products, research, and documentation to aid librarians and information scientist in

evaluating the applications, new products, potential and reliability of CD-ROM and its related technologies.

106. TENOPIR (Carol). CD-ROM database update. Lib J. 111, 20; 1986. Dec ; 70-71.

Reviews recent developments in CD-ROM database production, including : the exit of Digital Equipment Corporation (DEC) from CD-ROM database publishing ; new products ; the need for standardisation ; the result of a Sociological Abseracts survey; and the current state of the market.

_____, _____, _____, COMPACT DISCLOSURE

107. KEMP (Richard). Compact disclosure : A review of the new disclosure CD-ROM Elect Opt Pub Rev. 6, 4; 1986, Dec : 218-223.

Presents serces of articles reviewing CD-ROM databases. Compact disclosure, the quarterly updated CD-ROM various of the disclosure database, is reviewed from the point of : user documentation care of searching; retrieval power and speed ; and price structure. Comparision in costs between the CD-ROM and On-Line products was attempted but not found to be possible.

_____, _____, _____, ECONOMIC ASPECTS

108. ARNOLD (Stephen E). Banker's dozen of CD-ROM myths. Elect Opt Rev. 7, 2; 1987, Jun : 58-63.

Recommends that database producers should take a hardlook at the CD-ROM market before introducing information products based on this technology. Barriers include : hardware problems ; inadequate retrieval software ; and incidental Costs that affect the economic vialibility of such products. Budgetary allocation for CD-ROM products will be weighed against the use of Online and print media.

109. POOLEY (Christopher). CD-ROM marketplace : A producer's perspective. Wil Lib Bull, 62, 4; 1987, Dec; 24-26.

Examines the contribution to a special issue devoted in part to CD-ROM. When laser disc technology was first introduced to libraries librarians recognized the great possibilities of the medium, especially its vast stronge capacity. Describes the major differences between print, Online and CD-ROM versions of the same database which fall in three key areas : Centent, currency and update frequency and pricing.

_____, _____, _____, EVALUATION

110. PEARCE (Karla J). CD-ROM : Careat emptor. Lib J. 113, 2; 1988, Feb ; 37-38.

Describes the project undertaken by the science and engineering division of the Columbia University libraries to evaluate the impact of CD-ROM based information. Outlines the problems encountered which included : incompatibility of software programs ; misleading instructions; lack of standardisation. Although experience in this experiment were frustrating, the project was also instructive.

_____, _____, _____, SOCIAL SCIENCES

111. PRESCHEL (Barbara M). Social science information on CD-ROM: Concerns of database producers, libraries and end-users Onlin Inf. 4, 2; 1987. Dec; 253-258.

Discusses, many social science data bases are becoming available on CD-ROM. Features of there CD-ROMs and their advantages and disadvantages in general are presented from the view points of the database producer, librarian and end user.

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_____, _____, _____, USA, SIRSI CORPORATION

112. YOUNG (Jacky). Integrating a CD-ROM into an inhouse library system : Sirsi's lasertap. Lib Hi Tech. 4, 2; 1986, Sum ; 51-53.

Describes, Sirsi Corporation has developed a CD-ROM interface for its integrated library system that provides access to MARC databases now available in that format. In the On-line mode, a host computer directly accesses the CD-ROM via a microcomputer. In the interactive mode, a staff member selects records from the CD-ROM and up-loads them to a host computer.

_____, _____, _____, USER'S EDUCATION

113. PETERS (Charles). CD-ROM and optical technology : The user interface. Online. 3,2 ; 1988, May ; 311-314.

Deals user interfaces that facilitate use of data-bases contained on CD-ROM are needed to increase the market for this alternative medium for dissemination of information. Interaction with the end-user is attained through instructions placed on the CD-ROM disc.

_____, _____, INFORMATION STORAGE

114. ANDRF (Q J P). Optical disc applications in libraries. Lib Tr. 37, 3; 1989; 326-42

Mentions that optical disc storage technology is among the most recent computer technologies to enter the library operations from acquisition of materials to

technical processing and document delivery is being touched by optical technology. Briefly discusses the distinctions related to recording medium and process or size of recording medium.

115. BALAKRISHAN (M R). Magnetic and optical storage of information. NISSAT News. 10, 1; 1991, Jan/Mar ; 7-9.

Shows the apparent advantages of optical storage media over magnetic media have made the computer based storage system even more attractive and popular in recent years. Discusses on some fundamental aspects of optical recording, production of CD-ROM and the equipment required to read.

_____, _____, INFORMATION STORAGE DEVICES.

116. RAM KUMAR, ASHOK KUMAR and SHARMA (S K). Secondary storage media : Developments from punch card to Laser media. ILA Bull. 30, 3-4; 1994, Oct; 97-101.

Discusses the development of various secondary storage devices and enumerates the details of technological changes occured in these media from first generation of computer to fourth generation computer. Presents various secondary storage devices prevalent today with their merits and demerits in general. The suitability of these different storage devices and their applications in library & information works have also been discussed.

_____, _____, INFORMATION STORAGE AND RETRIEVAL

117. AKEROYD (J). CD-ROM usage and prospects : An overview Program. 23, 4; 1989 ; 367-376.

Gives an overview of CD-ROM and its development as an emerging medium for information storage and dissemination. Describes the CD-ROM technology, highlighting the latest developments and products of this technology including WORM. Future developments, including networking novel publications and multimedia discs are described.

118. COATES (E J). Ranganathan's thought and its significance for the mechanisation of information storage and retrival. Her Lib Sc. 27, 1-2; 1988, Jan / Apr ; 3-14.

Discusses the slow acceptance and dissemination of Ranganathan's ideas. Shows the application of Ranganathan's ideas in mechanised information retrieval. Evaluates theasurus and the use of Ranganathan's devie in its construction.

119. HADAGALI (Parkash B). CD-ROM databases : Information storage and retrival. Luik Lib. 22, 1-2; 1990, Mar / Jun 1-5

Provides the ways for proper use of CD-ROM (Compact Disk-read only Memory). CD-ROM is new technology for information storage and retrieval. Discusses the advangates

and disadvantages of the use of CD-ROM. It further tells us about the Indian scenario for the use of CD-ROM.

120. HELGERSON (L W). CD-ROM technology : A new era for information storage and retrival. Online. 11, 5; 1985, No; 17-28.

Examines that CD-ROM is a new technology for information storage and retrival. It also describes the advantages and disadvantages of the use of CD-ROM, and discesses about huge capacity.

121. HOOD (W) and WILSON (C S). Indexing terms in the Lisa database on CD-ROM. Inf Process Manage. 30, 3; 1994. May / Jun : 327-342.

Summarises the findings of a recent study on the indixing practices used in the library and information science abstracts (LISA) database. The indexing terms (DE), the date each record was added to the file (DA) of each record were extracted, from the complete CD-ROM database. The concluding section looks at scope for further research on LISA and other databases.

122. LARGE (A), BEHESHTI (J) and RENAUD (A). Comparision of information retrieval from print and CD-ROM versions of an encyclopendia by elementary school students. Inf Process Manage. 30, 4; 1994, Jul / Aug; 492-513.

Conducts an experiment using 48 sixth grade students to compare retrieval techniques using the pring and CD-ROM versions of Compton's Encyclopedia. The searches were no faster on the CD-ROM than the print versions, but in both cases time was related directly to the number of terms involved. The students coped will with the CD-ROM interface and its several paths.

123. LUNIN (Lois F) and SCHIPMA (Peter B). Perspectives on CD-ROM for information storage and retrieval. J Amer So Inf Sc. 39, 1; 1988, Jan, 31-33.

Focusses on CD-ROM technology, the potential impact, and the potential problems as they apply to information science CD-ROM provides a storage capacity for personal computers that is far beyond that available with magnetic media; writing information retrieval application software to use that capacity requires some novel approaches.

_____, _____, _____, INDEXING SYSTEM

124. WISSMANN (C). Techniques of data retrieval for scientometric research in the ISI cotation indexes. J Inf Sc. 19, 5; 1993, 363-376.

Describes the usefulness of the retrieval software of the hosts dimdi, stn, dialog and ORBIT and the ISICD-ROM for scientometric studies in citation index database is examined. The frequency distribution of publications and citations, practical problems in the work with the online citation index are described.

_____, _____, _____, INFORMATION SYSTEMS

125. BALARAMA. Establishment of CD-ROM based information system : Plans and prospects.Lib Sc Slant Doc Inf St. 25, 4; 1988, Dec ; 244-261.

Presents an overview of the official disc technology. Basics of CD-ROM technology and production of the same are discussed. CD-ROM databases, softwares for CD-ROM, methods of gathering and handling and the value of these systems are delineated.

126. REESE (J). CD-ROM end-user instruction : Issued and challenges. Microc Inf Manag . 10, 2; 1993, Jun; 131-154.

Describes CD-ROM technology has grown tremendously is the last few years. Today, libraries includes CD-ROM

Products routinely as part of their information resources, Libraries find themselves facing the challenge of helping their patrons learn how to effectively search many different CD-ROM products.Discusses various formats in the today in libraries formeeting the challenge of CD-ROM end-user instruction.

127. SYLVIA (M). Building a gateway for the CD-ROM network: A step toward the vertual library with the vertual microsystems V. Server. Microg Inf Manag , 10. 2; 1993, Jun; 119-129.

Establishing a CD-ROM network which is accessible to users outside the library through the compus network is one step toward building the virtual library. Several methods are available for building a gateway from CD-ROM local area networks to wide-area networks. Every where Access software is a very new development and should ve seriously studied by those interested in gatewaying to other networks.

_____, _____, _____, INDEXING LANGUAGES

128. ROWLEY (J). Controlled versus natural indexing languages debate revisited : A perspective on information retrieval practice and research. J Inf Sc. 20, 2; 1994; 108-119.

Revisists the debate concerning controlled and natural indexing languages, as used in searching the databases of the Online hosts, in-house information retrieval systems, Online public access catalogues and detabases stored on CD-ROM. However, information retrival in practice involves a mixture of natural and controlled indexing languages used to search a wide variety of different kinds of databases.

_____, _____, _____, NETWORKS

129. GUNNING (K), MYERS (J E) and BAILEY (C W), Networked electronic information systems at the University of Houston libraries : The IRIS project and beyond. Lib Hi Tech. 11, 4; 1993, 49-56.

Describes in 1989, the University of Houston libraries began a two-year project to build an experimental Intelligent Reference Information System (IRIS). In 1992, the libraries initiated a new project to replace the IRIS network infrastructure, expand the number of network workstations, increase the number of networked CD-ROM databases, offer remote access to CD-ROMs, and provide access to new types of network resources, such as electronic serials and OPACs on the Internet.

_____, _____, INFORMATION TECHNOLOGY

130. BECKER (Joseph). How to integrate and manage new technology in the library. Sp Lib. 74, 1; 1983, Jan ; 1-6.

Presents as more and more technology permeates the special library and the broader environment within which it operates, a new requirement will emerge to integrate staff, equipment, and system differently. Special librarians are destined to play an increasingly greater role in establishing connections between information resources and people in the coming "information society".

131. ENSER (P G B). Information technology and the librarian: Meeting and challenge. Lib Sc Slant Doc Inf Stud. 25, 1; 1988, Mar ; 1-12.

Discusses the ramifecations of information technology has generated a variety of information products. These products have mobility to move straight from the author to the targeted audience. Technologically the movement of information from person to person may not need intermediaries. But there is need due to psychological educational, economic and social needs. Technology in essence, has brought in a wide scope for facile capture, representation and dissemination of information

132. GOPINATH (M A). Information technology and its impact on information retrieval systems. Lib Sc Slant Doc Inf stud. 22, 4; 1985, Dec; 237-251.

Narrates that developments in information technology are delineated. Impact of these tebhnology in various aspects of information storage and retrieval systems are analysed. The total picture of information technology and conducive use in information dissemination are presented.

133. KUMAR (P S G). New Technology. Luck Lib. 18, 4; 1986, Oct / Dec ; 145-151.

Discusses the developments in electronics, computers and information technologies. It gives the details of developments in micrographics, data systems and networks. Also describes the mini and micro computers, personal, portable and speaking computers, Videotex, electronic publications, electronic mail etc.

134- RAMADEVI (B). Information technology and information services : A scenario. Desidoc Bull, 11, 4; 1991, Jul ; 3-8.

Introduces aims at tracing the developments in information technology due to computers and communications; and information scenario heading for paperless libraries ; and the impact it is likely to have on information personnel and agencies.

135. RIETDYK (ROn J). Creation and distribution of CD-ROM databases for the library reference desk. J Amer So Inf Sc. 39, 1; 1988, Jan ; 58-62.

Summarizes out experiences and gives some first observations on the use of this exciting new technology in libraries. Three important groups are discussed : Information providers. Librarians. End users in the Library. All three groups have different interests and concerns.

136. ROY (Satyabrata). Jrends in information technology. Iaslic Bull. 32, 2; 1987, Jun ; 95-98.

Discusses what is information technology, where is technology going in the future and how will it change out way of doing business and also what trends that we have seen are described.

_____, _____, INFORMATION TECHNOLOGY, LIBRARY, ACADEMIC

137. CROWN (Lawson) and ANTHENS (Susan H). Academic libraries and information technology : Ethical issues. Coll Res Lib. 49, 2; 1988, Mar ; 114-118.

Describes that academic librarians face a new working environment engendered by the rapid growth of information and advances in information technology.

_____, _____, _____, ONLINE INFORMATION

138. KRANCH (D A). Development and impact of a global information system Inf Tech Lib. 8, 4; 1989, Apr ; 384-388.

Discusses the three revolutionary technological changes required to bring about affordable individual access to global Online information. They are : efficient large-scale database construction and maintenance, high-speed digital transmission networks, and highly precise intelligent search ware. Projects a model to illustrate the pricing and retrival rate changes that may be expected over the next fifty years.

_____. _____, LIBRARY, ACADEMIC

1[illegible]. LAMBERT (JILL). Managing CD-ROM services in academic libraries. J Libr Inf Sc. 26, 1; 1994, Mar ; 23-28.

Presents a state of art review of the application of CD-ROMs in academic libraries, embracing all aspects at library environment and staffing implications. Concludes that CD-ROM is having a huge impact on the way academic libraries function and the services they offer to their users. There are major implications for the existing library stock, especially where information published on CD-ROM is available in printed form.

140. MICHALAK (J A). Observations on the use of CD-ROM in academic libraries. Serials Lib. 17, 3/4, 1990, Mar/Apr; 63-67.

Outlines observations on the impact of CD-ROM on library users, services and staff. Suggests the need for librariens to develop the understanding amongst its users, which is essential for exploitation of the vast amount of information generated by CD-ROM systems.

_____, _____, _____, _____, FUTURE

141. CONNOLLY (Bruce). Looking backward- CD-ROM and the academic library of the future. Online. 11, 3; 1987, May, 56-61.

Examines the services, procedures, and sources that lend themselves to CD-ROM and CDI (Compact Disc interactive) applications and links them to products in the marketplace today. Portrays, by making extrapolations based on existing technology, the evolution that these first products mignt have undergone and what the effects of this evolution might have been on the ways in which libraries work.

_____, _____, LIBRARY, BRITISH

142. GRINYER (David) and MACSEN (Tony). Path to the Anglo-French pilot project : A British library view of CD-ROM development to date.Int Cat Bib Con. 17, 3; 1988, Jul/Sep. 47-48.

Describes CD-ROM has considerable potential as a medium for publishing the BL's range of catalogues and

other databases. It offers the opportunity to add significantly to the infrastructural services which the BL provides to the library and information community.

_____, _____, LIBRARY COMPUTERIZATION

143. HARINARAYANA (N S). Concept of library automation. Her Lib Sc. 30, 3-4; 1991, Jul/Oct; 175-184.

Presents the scope of library automation include automation of routine work, services, office work, and scientific management of libraries. Any automation project can be viewed through three stages : planning, designing and operational. Planning stages includes the study of the various aspects of feasibility of the project.

144. SAFFADY (W). Microcomputers in libraries. Lib Tr. 37, 3; 1989 ; 269-281.

Gives an overview of the major facets of automation activity. Surveys the current state of computer application in six areas of library work ; Circulation control, descriptive cataloging, catalogue maintenance and production. Indicates the motives for automation in each of the above areas and describes current dominant approaches.

_____, _____, LIBRARY, CONGRESS, USA

145. BECKER (herbert S). Library of Congress digital library effort. Comm ACM. 38, 4; 1995, Apr ; 66.

Describes that the library of congress is Committed to collaboration with other major research institutions

and libraries in Creating electronic Collections, both to share the workload and to ensure that comprehensive collections are digitized.

_____, _____, _____, DEFENCE, NEW DELHI

146. RELAN (Sonia) and LAKSHMI (Kakkar Vejay). CD-ROM facilities at DESIDOC. Desidoc Bull. 13, 1-2; 1993, Jan ; 3-8.

Describes the defence library of (DESIDOC) has selected mainly those databases on CD-ROM which be retained permanently and a few of the important databases, are to be subscribed annually. DESIDOC has acquired NTIS and LISA databases also Applied Science and Technology Index, Mc Grow Hill Encyclopedia etc. The databases acquired are used for ready reference / literature searches by the scientific Community.

_____, _____, LISA

147. HUSAIN (Nargis). CD-ROM : An appropriate technology for developing countries-Lisa's role in Indian Libraries. Her Lib Sc. 27, 1-2; 1988, Jan/Apr ; 55-61.

Examines the problems of developing countries and CD-ROM. Describes LISA's production method. Discusses the use of computers in India. Points out the success for LISA On CD-ROM on world wide basis.

148. MOORE (N L). Searching LISA on the silver platter CD-ROM system. Program. 22, 1; 1988, Jan ; 72-76.

Traces library & information science abstract became available on CD-ROM in May, 1987. Officially, the database consists of a complete file of LISA, from its launch in January 1969 to March 1987. The CD-ROM contains over 82,000 references to the literature of librarianship, information science and related subjects and roughly corresponds to the DIALOG and ORBIT file. The latert version of the silver platter software allows direct entry of a term from the INDEX to a FIND statement by means of the cursor.

_____, _____, LIBRARY, NATIONAL, SINGAPORE

149. BOUDVILLE (Veronica). Singapore national library introduces CD-ROM technology and services. Her Lib Sc. 33, 3-4; 1994, Jul / Oct; 193-195.

Gives an accounts of the computerization, Online system and electronic devices introduced in National library of Signapore. Describes the application of CD-ROM technology, transfer of cataloguing records of Singapore publications as listed in the Singapore National Bibliography. States the other CD-ROM projects, N Line (National Library line), home delivery system and the Community childrens libraries connected with National Library.

_____, _____, _____, PUBLIC,GREAT BRITAIN

150. BATTERBEE (Collectte) and NICHOLAS (Dave). CD-ROM in public libraries : A survey. Aslib Proc. 47, 3; 1995, Mar ; 63-72.

Summarizes the main findings of a survey, undertaken in early 1994, of open access CD-ROM in British public library Authorities (PLA) were inplementing CD-ROM technology for public use and how well the general public were fairing with CD-ROMs. The survey was both qualitative and quantitative in nature.

_____, _____, _____, UNIVERSITY

151. GRAVES (Gail T) and KING (Beth F). Planning for CD-ROM in the reference department. Coll Res Lib. 48, 7; 1987, Jul / Aug ; 395-400.

Describes the implementation of CD-ROM technology in the Williams Library of the University of Mississippi, with special emphasis on the selection of databases and hardware.

_____, _____, _____, _____, SAUDIA ARABIA

152. KANAMUGIRE (A B). Developing a CD-ROM service in Saudi Arabia : Some lessons for developing countries. J Inf Sc. 20, 2; 1994-99-107.

Discusses the first-hand experience of the king Fahd University of petroleum and Minerals (KFUPM) library in Saudi Arabia in setting up and developing a public

acces CD-ROM service. Firstly, gives brief background information on the University and the library. Followed by a discussion of the rationale for embracing CD-ROM. Finally, drawing on the KFUPM library experience, the article advances suggestions on developing a CD-ROM service in developing countries.

_____, _____, MEDLINE

153. GLITZ (Beryl). Jesting the new technology : MEDLINE on CD-ROM in an academic health science library. Sp Lib. 78, 1; 1988, Win ; 28-33.

Contains the implications of this test underline the important role libraries must take in guaranteeing that new reference tools like CD-ROM be made genuinely user-friendly. The UCLA Biomedical library tested a six month portion of the MEDLINE database on compact disc to determine its potential application in a large, University health science library environment.

_____, _____, _____

154. SMITH (I W). Towards an evaluation of CD-ROM products in the library user services environment. Inf Serv Use. 9; 1989; 85-91.

Outlines the need for, and the issues involved in the library user services environment. Discusses the evaluation process, including the criteria adopted and

the test methods utilized in the evaluation of four MEDLINE Versions available in Australia to identify the product which will best meet the needs of the library and its users.

_____, _____, MICROCOMPUTERS

155. WALLACE (D P). Microcomputers in libraries. Lib Tr. 37, 3; 1989; 282-301.

Gives the history and development of microcomputers with special reference to their introduction in libraries outlines the sources of information on the selection of the hardware and software suited for different library applications Evaluates the future of microcomputers in libraries.

_____, _____, _____, LASER OPTICAL DISCS

156. MASON(Robert M). Laser discs for micros Lib J. 110, 3; 1985, Feb; 124-125.

Focuses on the development of laser current production is entred on the compact disk-Read only memory (CD-ROM) devices which use technology that produces a read only disc from which it is impossible to erasedata. Each CD-ROM disc will store the equivalent of 200; 000 pages of text or 600,000 MARC records. It is unlikely that CD-ROMs will replace hard discs in applications in which speed of data base access is important.

_____, _____, MULTIMEDIA

157. ROBERTS (Stephen). Towards a pocket library. IFLAJ. 18, 3; 1992, Aug ; 258-266.

Provides a detailed introduction to the ways in which computirization can help to access and exploit materials both effectively and speedily. Linking multiple types of information (textimages audio) via a single controllable channel is called "multimedia" or "hypermedia". Clear explanations of CD, CD-ROM, CD-1, DVI, CDTV and CD-ROM/XA are given ; also their capabilitie .

_____, _____, NETWORKS

158. AKEROYD (J). CD-ROM networking. Inf Serv Use. 12, 1; 1992,55-63.

Shows an overview of CD-ROM networks. Describes the system available and provides some user experience of one network in an academic library. The technology is explained including the different possible configurations and some alternative solutions.

159. BUTCHER (S). Rewards and trials of networking : CD-ROM databases. Database, 13, 4; 1990,Aug ; 103-105.

Examines that a CD-ROM is a local area or wide area network that shares CD-ROM databases among the network users. A single CD-ROM disc on the network can be

searched by more than one user at a time. Describes that in most CD-ROM networks there is one (or more) Computer(s) on the local area network with several CD-ROM players attached to it.

160. SIMPSON (E). Networking CD-ROMs : technical overview and the view from the Manchester Business School. J Inf Sc. 20, 1; 1994; 46-54.

Mentions the 1993 post-AGM meeting of the Scottish branch of the Institute of Information Scientists focused on the principles and practices of networking CD-ROMs. Presents an evaluative overview of the technical options for networking CD-ROMs, Contrasting peer-to-peer and client server approaches, and also new options for supporting CD-ROMs directly from LAN operating systems.

161. VENTRESS (A). Networks and CD-ROMs. Inf Serv Use. 9, 2; 1989; 93-100.

Deals with basic CD-ROM and networking terminologies. Supplements the discussion with the round up of the CD-ROM network marketplace as of November 1988.

_____, _____, _____, LOCAL AREA

162. FLANDERS (B L). Spinning the hist : CD-ROM network in libraries. Amer Lib. 21, 11; 1990, Dec; 1032-1034.

Analyses while librarians placed high expectations on networking, they soon found that implementing a local

area network presented them with a new set of problems. Setting up a CD-ROM network requires a large capital expenditure initially.

163. KNOWLES (John). Software system analysis of a CD-ROM network for a multi-site polytechnic. J Lib Inf Sc. 25, 4; 1993, 132-136.

Presents results of a research project carried out at Liverpool Polytechnic library services insummer 1991, to analyze the current CD-ROM facilities and to evaluate the CD-ROM networking systems currently on the market that were best market to the Polytechnic's needs. The project aimed to find a CD-ROM local area network (LAN) solution that could be bridged into the campus.

164. MORROW (B V). Do-it-yourself CD-ROM LANs : a review of LANtastic and CD-Connection. CD-ROM Libr. 5, 10; 1990; 12-24.

Analyzes CD-ROM's establishment in libraries is confirmed by now; and local area networks have began to attract attention within library circles. Discusses two products that allow the inexpensive and successful use of CD-ROM resources in a networked environment. Although LANtastic from Artisoft and CD-Connection from CBIS were both designed with CD-ROM in mind, each uses a conspicuously different approach for solving the connect CD-ROM dilema.

165. PICKERING (Wendy). CD-ROM puts a spin on software distribution. Datamation. 40, 4; 1994, Feb ; 61-62.

Describes new CD-ROM software distribution systems for the LAN will make it a lot easier to manage software assets, add a licence or just test drive new applications.

_____, _____, ONCOLOGY

166. SCHIPMA (Peter B). CD-ROM database product for oncology. J Am So Inf Sc. 39, 1; 1988. Jan ; 63-66.

Discusses the development of a vertically oriented CD-ROM database product in the medical subdiscipline of Onclogy, Called Oncodise, the CD-ROM is mastered by ISG, The disc provides a personal library of Oncology information for immediate local use by the health professionals; it requires no subscription to an online service, no telecommunications, and no Online search charges.

_____, _____, OPERATING SYSTEM, MULTIDRIVE

167. MITCHELL (Shawn). Multi-Drive : A unique CD-ROM drive Unit. CD-ROM libr. 5, 10; 1990; 6.

Narrates that Multi-Drive combines up to four CD-ROM drives in each stacked which locks for complete security. Each Multi Drive Unit contains upto four Hitchi 3600 CD-ROM drives. The chassis has an attractive, smoked plexiglass face plate which librarians can use as a lock to present Unauthorized access.

_____, _____, OPTICAL DISCS

168. HAVIES (David H). CD-ROM medium. J Amer So Inf Sc. 39, 1; 1988, Jan ; 34-42.

Details the critical elements that make up the CD-ROM optical disc medium. This includes the basic laser and drive operational mechanics, the nature of the actual disc itself, the data organization at the channel code level and at the logical file level, and aspects of error correction and detection methods used, presents synopsis of the disc fabrication, advances in the technology currently on the horizar.

169. SELVEN (Gene) and Moon (Michael). Long awaited bonanza on optical storage finally arises. L Dis Prof. 1, 1; 1988, May ; 86-88.

Presents sample results from the published study. The impact of optical technology on paper, microform and magnetic disc and tape storage. A breakdown of market shares for the specific storage media is presented for the total information market and the share of the non-paper storage media market for the years 1987 and 1991.

170. TUMLIN (M D). Time management considerations for balancing optical disc point-of-use istruction with other reference services. Micrg Inf Manag. 10, 3; 1993, Sep; 215-226.

Discusses the introduction of optical discs, particularly CD-ROMs, into library reference departments has dramatically increased the instructional demands made on librarians. While there are several types of intruction being offered by libraries, librarians are considering strategies for managing the provision of point-of-use instruction so that all patrons, including optical disc users, receive maximum service.

_____, _____, _____, INFORMATION RETRIEVAL

171. ALI (S N). Databases on optical discs, and their potential in developing countries J Amer So Inf Sc. 41, 4; 1990, Apr; 238-243.

Deals the problems faced by developing countries and the potential role of optical disc technology in providing an in-house information retrieval system with access to millions of records now already made available on optical discs. Describes major areas of information in which optical disc databases can help, highlighting their implications on the developing countries.

_____, _____, OPTICAL DISC TECHNOLOGY

172. ABBOTT (S). Wider vision of optoelectronics. Microg Opt Tech. 8, 3; 1990; 121-127.

Presents the vision of optoelectronics that involves generating, displaying, sending, printing and storing images starts from the needs of the user who is less interested in the technology than in the function of the system as a whole. Discusses in detail the generation, display, transmission, printing and s torage of such images.

173. BENDER (A). Optical disc based information retrieval system. Lib Hi Tech. 6, 3; 1988; 81-85.

Discusses optical technology has opend up a new method of data storage and retrieval for libraries. CD-ROMs are available for cataloguing aids, bibliographic searching, full text searching and other tasks.

174. EDWARDS (Ian C). Optical storage developments : Write once media. Elect Op Pub Rev. 7, 1; 1987, Mar ; 16-20.

Discusses the position of write-once media within a range of optical dises. Benefits of the type of media and typical applications are highlighted. Trends towards standardisation are noted and comments on likely development are made. The role of the Philips and DU Pont optical company Netherland in there development is described.

175. KELLEY (C). CD-ROM, CD-I, DVI, CD-ROM / XA : Where are we headed ? CD-ROM Libr. 4, 8; 1989, Aug : 20-29.

Gives an overview of newer optical technologies, including CD-I and DVI. Describes the structure, components and applications of CD-I and DVI and highlights the implications of these technologies on library collections and operations. Outlines the factors affecting the acceptance of these products with emphasis on their cost assessment as compared with online services.

176. SWORA (Tamara) and ANDREY (Fischer). Technical services in 1984 and 1985, micrographics, optical desk technology and their use. Lib Reso Tec Serv. 30, 3; 1986, Jul/Sept; 183-217.

Study of technical services during the 1984-85. It describes that optical disk system based on personnel Computer was an important development during this period. It also discusses about the development in micrographics and use of micro form in libraries.

_____, _____, OPTICAL DISC STORAGE

177. MAHAKUTESHWAR (H Y). Optical storage devices and their impact on libraries and information retrieval system. Ann Lib Sc Doc. 35, 3; 1988, Sept; 105-110.

Discusses about the use of optical storage devices. It describes that optical storage technology is based on

new form of consumer photograph. One of the most important optical storage technologies i.e CD-ROM (Compact-Disk-Read Only Memory) is discussed in this article in detail.

____, ____, OPTICAL DISCS TECHNOLOGY,INFORMATION STORAGE AND RETRIEVAL

178. KRANCH (Douglas). Optical disc technology. Sp Lib. 80, 4; 1989, Sum ; 237-244.

Describes the recent advances in the recording of vedio optical disc have demonstrated the possibility of compressed archival image storage.Through a snared network individual television film libraries could combine film holding's onto discs and access them through Online searching. Developments in search, storage, and transmission technology will soon make large-scale image retrieval systems economically feasible.

_____, _____, _____, LIBRARY, CONGRESS, USA

179. REICH (Victoria A) and BETCHER (Melissa A). Library of Congress staff test optical disk sytem. Coll Res Libs. 47, 4; 1986, Jul, 385-391.

Mentions the library of congress has four optical disc reader stations that allow patrons to view and print document images at a resolution of 150 by 300 lines per inch. This phase of theevaluation project envolved the

the staff during the implimentation of this technology. Some problems were experienced viewing nontextual materials, and care in choosing materials for inclusion onto the system is recommended.

_____, _____, OPTICAL PRODUCTS

180. HERTHER (Nancy K). CD-ROM and information dissemination: An update. Online 11, 2; 1987, Mar ; 56-64.

Examines the developments in optical media a technology and at the evolving market place for optical products, concentrating on CD-ROM. Gives a glossary of basic terms, also discusses the use of libraries as beta test sites.

_____, _____, SAFETY MEASURE

181. HENSINGER (Jim). Security device for CD-ROM. CD-ROM Libr. 5, 10; 1990; 10-11.

Introduces that the Bibliographical centre for Research (BCR) is offering a solution to security problems for CD-ROM discs and drives.LASER SAFE is a small locking device that controls the removal of CD-ROM discs from front loading drives. Staff members with the key can easily access the lock that is on the front of the drive.

_____, _____, SEARCH STRATEGY

182. CHARLES (Susan K) and CLARK (Katharine E). Enhancing CD-ROM searches with On-line update. Coll Res Lib. 51, 4; 1990, July ; 321-328.

Contains a research project was conducted to evaluate the feasibility of providing an online updating service to end users searching CD-ROM data bases. End user searching strategies were observed and problems were noted.

_____, _____, STANDARDIZATION

183. FRANCIS (Bob). CD-ROMs Drive towards new standards. Datamation 39, 4; 1993, Feb ; 57-60.

Discusses multimedia, image capture, full-motion video and network data storage are tantalizing new technologies for IS managers looking to the future. However, there is plenty of concern over what standards will eventually dominate. That's particularly true of today's CD-ROM drives, since the standards a particular product supports may limit what can be done with it in the future.

184. MORROW (B V). In search of a standard for CD-ROM retrieval. CD-ROM libr. 5, 3; 1990, Mar ; 12-16.

Gives the concept of standardization and opines the computer as the instrument of standardization. Discusses that standardization is necessary for process,

practices and material used in the system to reduce costs, minimize efforts, save time and conserve materials.

185. MORROW (B V). Retrieval software for CD-ROM : Dowe really want standards ? CD-ROM Libr. 5, 10; 1989, Nov ; 21-25.

Discusses the existing and commonly accepted CD-ROM standards merely provide a medium on which to put data. The format for textual information alone has yet to reach consensus. When graphics are added to textual data, more standardization problems emerge. Text files with graphic applications have several ...ri-ering formatting standards.

_____, _____, TELECOMMUNICATIONS

186. BELL (S). Spreading CD-ROM technology beyond the library: Applications for remote. Communications software. Sp Lib. 81, 3; 1990; 189-195.

Presents the use of remote communications software (RCS) as an inexpensive way to deliver information technologies to the users at remote locations. The access to new information technologies, particularly CD-ROM databases is difficult for the users at remote sites. Highlights the potential advantages and disadvantages of the use of RCS in library environment.

187. BROOKS (Diane). System-system interaction in computerized indexing of visual materials : A selected review. Inf Tech Lib. 7, 2; 1988, Feb; 111-123.

Discusses international computerized indexing systems for visual materials. The system included were among the best in literature for their time or have significant potential and represent the state of the art in their respective countries. Technologies available for reproducing images are investigated highlighting videotext, videodisc, and digital storage.

188. FITZWATER (Diana) and FRADKING (Bernard). CD-ROM and Fax : Shared reference resource. Amer Lib. 19, 5; 1988, May ; 385-386.

Describes, the Learning Resources centre (LRC) at the college of DU Page Glen Ellyn, Illinous, has joined a area libraries in a project to provide cooperative reference access to CD-ROM databases. The Cooperating libraries use the CD-ROM databases networked with telefacsmile transmission equipment and Gamma Fan software.

189. HAMBER (A). 19th Century photographically illustrated publications and the British library general catalogue on CD-ROM. Comp Hist Art. 3, 2; 1993, 39-58.

Conducts the CD-ROM version of the printed edition of the British library catalogue of printed books is examined. The utility of CD-ROM version is discussed

inrelation to the author's research into 19th century books with photographically produced illustrations. The structuring of data and construction of an appropriate relational database are discussed.

190. REID (C). Comparing text, document, and relational database management systems. Lib Soft Rev. 9, 2; 1990; 80-82.

Suggests in this age of computerized storage and retrieval systems, there is a critical need for tools to manage, access, and disseminate text and emage information ranging from face form ASCII data to scanned documents stored on optical media.

_____, _____, USER'S EDUCATION

191. HALSEY (R S). Learning about CD-ROM technology : an educator's perspective on sources issues, criteria, break through and reaearch. Inf Tech Lib. 38, 4; 1989.

Introduces the ways to develop procedures for acquiring information directly from CD-experts are given. Characteristics of reference works that make them amenable to CD-ROM conversion are described. Besides environment factors such as budget and anailable supporting technology, other cretical factors including intrinsic value and usefulness, size of text, ideational dessity, range of subjects and obsolescence rate are highlighted.

_____, _____, USER'S NEED

192. NEWHARD (Robert). Converting information into knowledge : The promise of CD-ROM. Wil Lib Bull. 62, 4; 1987, Dec ; 36-38.

Discusses the need to deliver optimum amounts of information to the right place at the right time can be met through the use of increasingly powerful and relatively inexpensive microcomputers and their related technology. Briefly reviews the current state of the microcomputer and related technology to emphasise this responsibility. Discusses the process of translating information into knowledge.

_____, _____, USER'S SURVEY

193. FARIES (Cindy). Users reactions to CD-ROM : The Penn state experience. Sp Lib. 53, 2; 1992, Mar ; 139-149.

Surveys users of CD-ROMs for two week periods in the fall of 1989 and the spring of 1990. The results provided valuable information about who using the systems, which system were the most popular ; how patrons perceived help available to them ; What type of instruction they would desire, and what suggestions patrons had to offer to improve service to this technology. As academic libraries increasingly adopt new technologies, users surveys such as this one will provide important information.

_____, _____, USER'S SYSTEM INTERFACE

194. CRANE (Nancy) and DURFEE (Tamara). Entering Unchartered territory : Putting CD-ROM in place Wil Lib Bull. 62, 4; 1987, Dec ; 28-30.

Examines the considerations that need to be raised before implementing end-user CD-ROM and offers some proposals as to how solutions may be found. These include: assessing the environment ; choice of a CD-ROM system; components needed in setting up a work station,vendor services, placement, users constrains ; training for searching, statistics and effects on staff and desired features of CD-ROM services.

_____, _____, VENDORS

195. BAMFORD (C M). Allocating resources for CD-ROM : A Vendor's perspective. Lib J. 115, 2; 1990, Feb ; 58-59.

Presents the resources allocated for the development of new information technology, CD-ROM. Also describes Vendor's perspective in this technology and the profitable market place.

196. NELSON (Nancy). CD-ROM industry : A library market overview. Wil Lib Bull. 62, 4; 1987, Dec, 19-20.

Analyzes the contribution to a special issue deveted in part to CD-ROM Examines the implications of CD-ROM technology for libraries and lists Vendors who

have entered the CD-ROM marketplace. Considers energing, trends in the library CD-ROM marketplace.

197. RAMAIAH (C K). Video disc and their applications. Iaslic Bull. 35, 3; 1990, Jun ; 55-62.

Reviews from origin to the present position of VDs including CD-IV and Hypermedia forms. It also gives the features, advantages, disadvantages of the VDs in brief.

_____, _____, _____, INFORMATION STORAGE & RETRIEVA

198. KAPOOR (S K). Vediodisc technology : Its potential f. information storage and retrieval. Iaslic Bull. 29, 3; 1984, Sept ;113-117.

Mentions that vediodisc technology has great potential for information storage and retrieval Examines the following videodisc systems. the optical videodisc and the optical digital disc. Considers the advantages of the optical for the storage of documents, also examines the instruction programmes linking text and graphics, and access to fulltext and document delivery.

_____, _____, VIDEODISC TECHNOLOGY

199. MARSH (Fred E). Videodisc techrology. J Amer So In Sc. 33, 4; 1982, Jul ; 237-244.

Describes the major area of videodisc systems technology and identified. The operation, reliability,

storage capacities, and application of this laser systems are presented in detail. The versatility of the optical disc is ellustrated by its capabilities to digitize a large collection of bibliographic data and to image process the fulltext of energy documents.

_____, _____, _____, CANADA

200. SONNEMANN (Sabine S). Videodisc as a library tool. Sp Lib, 74, 1; 1983, Jan ; 7-13.

Describes the national library of Canada produced a Videodisc between July 1981 and July 82. The Videodisc project was designed to demonstrate. The ability of the videodisc to store and present library materials in a variety of formats ; the information retrieval capability of a combined videodisc and microcomputer system ; and the use of the videodisc as a practical research tool. The disc is a two sided, refletive constant-angular videodisc.

_____, _____, View Point of LIBRARIANS

201. EATON (Nancy L). Receptivity of librarian to optical information technologies and products. Elect Op Pub Rev. 6, 4; 1986, Dec; 190-192.

Reviews the development of CD-ROM database publishing and standards since 1983. Some of the concerns felt by librarians, including equipment reliability and workstation Configuration, are aired, the main application and markets are for optical versions of existing print and On-line databases, a large future market lies in novel types of products.

_____, _____, WILSON DISC

202. REGAZZI (John J). Silver disk WILSONDISC : WILSOLINE on CD-ROM. Database 9, 5; 1986, Oct; 73-74.

Discusses WILSONDISC, WILSOLINE on CD-ROM from H.W. Wilson Co.: New York, USA, a computerised information system supporting both editional and manufacturing processes involved in the creation of the company's subject indexes and catalogues. The system was designed to provide an automated means for the gathering, storage, tracking, retrieval and management of the company's editorial data.

PART THREE
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ALPHABETICAL LIST OF PERIODICALS SCANNED

Sr.No.	ABB.FORM OF PERIODICAL	FULL FORM
01.	Amer Libr	AMERICAN LIBRARIANSHIP
02.	Ann Lib Sc Doc	ANNALS OF LIBRARY SCIENCE & DOCUMENTATION
03.	Aslib Inf	ASLIB INFORMATION
04.	Aslib Proc	ASLIB PROCEEDING
05.	CD-ROM Libr	CD-ROM LIBRARIAN
06.	Coll Rec Lib	COLLEGE & RESEARCH LIBRARY
07.	Comm ACM	COMMUNICATION ACM
08.	Comput Hist Art	COMPUTER HISTORY ART
09.	Comput Libr	COMPUTER LIBRARIAN
10.	Database	DATABASE
11.	Datamation	DATAMATION
12.	Desidoc Bull	DESIDOC BULLETIN
13.	Elect Lib	ELECTRICAL LIBRARIES
14.	Elect Opt Pub Rev	ELECTRONIC OPTICAL PUBLICATION REVIEW
15.	Her Lib Sc	HERALD OF LIBRARY SCIENCE
16.	Iaslic Bull	IASLIC BULLETIN
17.	IFLA J	IFLA JOURNAL
18.	ILA BULL	ILA BULLETIN
19.	Inf Process Manag	INFORMATION PROCESSING MANAGEMENT
20.	Inf Ret Lib Auto	INFORMATION RETRIEVAL LIBRARY AUTOMATION

Sr.No.	ABB.FORM OF PERIODICAL	FULL FORM
21.	Inf Serv use	INFORMATION SERVICE USE
22.	Inf Tech Lib	INFORMATION TECHNOLOGY AND LIBRARIES
23.	Interactive Multimedia	INTERACTIVE MULTIMEDIA
24.	Int Cat Bib Cont	INTERNATIONAL CATALOGUING BIBLIOGRAPHIC CONTROL
25.	J Amer So Inf Sc	JOURNAL OF AMERICAN SOCIETY FOR INFORMATION SCIENCE
26.	J Doc	JOURNAL OF DOCUMENTATION
27.	J Inf Sc	JOURNAL OF INFORMATION SCIENCE
28.	J Libr	JOURNAL OF LIBRARIANSHIP
29.	J Lib Inf Sc	JOURNAL OF LIBRARY AND INFORMATION SCIENCE
30.	Ldisc Prof	LASER DISC PROFESSIONAL
31.	LA Rec	LIBRARY ASSOCIATION RECORD
32.	Lib Hi Tech	LIBRARY HIGH TECHNOLOGY
33.	Lib J	LIBRARY JOURNAL
34.	Lib Reso Tech Serv	LIBRARY RESOURCES AND TECHNICAL SERVICES
35.	Lib Sc Slant Doc	LIBRARY SCIENCE WITH SLANT DOCUMENTATION STUDIES
36.	Lib Soft Rev	LIBRARY SOFTWARE REVIEW
37.	Lib Tr.	LIBRARY TRENDS
38.	Luck Libr	LUCKNOW LIBRARIAN
39.	Microg Inf Manag	MICROGRAPHIC INFORMATION MANAGEMENT
40.	NISSAT News	NISSAT NEWS LETTER

Sr.No.	ABB.FORM OF PERIODICAL	FULL FORM
41.	Online	ONLINE
42.	Online Inf	ONLINE INFORMATION
43.	Program	PROGRAM
44.	Ref Libr	REFERENCE LIBRARIAN
45.	Sch Lib J	SCHOOL LIBRARY JOURNAL
46.	SC Lib J	SCIENTIFIC LIBRARY JOURNAL
47.	Serials Libr	SERIALS LIBRARIAN
48.	Sp Lib	SPECIAL LIBRARIES
49.	Univ News	UNIVERSITY NEWS
50.	Wil Lib Bull	WILSON LIBRARY BULLETIN

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*NAME OF MONTHS WITH ABBREVIATED FORM *
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ABB.	NAME OF THE MONTH	FULL FORM
Jan	___	JANUARY
Feb	___	FEBRUARY
Mar	___	MARCH
Apr	___	APRIL
May	___	MAY
Jun	___	JUNE
Jul	___	JULY
Aug	___	AUGUST
Sep	___	SEPTEMBER
Oct	___	OCTOBER
Nov	___	NOVEMBER
Dec	___	DECEMBER